

**U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE**

SPECIFICATION

**WATERBAGS, 55-GALLON, NYLON DUCK
(WITH REPLACEABLE LINERS)**

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers 55 gallon capacity drinking and suppression waterbags.

1.2 Classification. The waterbags shall be of the following types:

- Type I - 55 Gallon Drinking
- Type II - 55 Gallon Suppression

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those in effect on the date of the invitation for bids or request for proposals.

SPECIFICATIONS

FEDERAL

- A-A-55301 - Webbing, Textile, Bulked Nylon
- A-A-55634 - Fasteners, Slide, Interlocking
- DDD-L-20 - Label: For Clothing, Equipage, and Tentage (General Use)
- V-T-295 - Thread, Nylon
- L-P-375 - Plastic Film, Flexible, Vinyl Chloride
- L-H-520 - Hose and Hose Assembly, Non-Metallic

Beneficial comments (recommendations, additions, deletions) and any pertinent data that may be used in improving this document should be addressed to: USDA Forest Service, Missoula Technology and Development Center, Building 1, Fort Missoula, Missoula, MT 59804-7294 by using the Specification Comment Sheet at the end of this document or by letter.

MILITARY

MIL-W-4088 - Webbing, Textile, Woven Nylon
MIL-P-18080 - Plastic Sheets, Vinyl, Flexible. Transparent, Optical Quality

USDA FOREST SERVICE

5100-86 - Cloth, Duck, Nylon (Polyurethane Coated)
5100-95 - Liners, Replaceable, for 5- and 55-Gallon Water Bags
5100-500 - Remote Hook Systems, Leadlines, and Swivels, External, Helicopter

STANDARDS

FEDERAL

FED-STD-123 - Marking for Shipment (Civil Agencies)
FED-STD-376 - Preferred Metric Units for General Use By the Federal Government

(Unless otherwise indicated, copies of federal and military specifications and standards are available from the Defense Automated Printing Service, Building 4/D, 700 Robbins Ave., Philadelphia, PA 19111-5094. Copies of Forest Service specifications 5100-86 and 5100-95 are available from USDA Forest Service, Missoula Technology and Development Center, Building 1, Fort Missoula, Missoula, MT 59804-7294. Copies of Forest Service specification 5100-501 are available from USDA Forest Service, San Dimas Technology and Development Center, 444 E. Bonita Ave., San Dimas, CA 91773.)

2.1.2 Other Government drawings. The following Government drawings form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those in effect on the date of the invitation for bids or request for proposals.

DRAWINGS

USDA FOREST SERVICE

MTDC-887 - Waterbag, Nylon Duck, 55 Gallon, Drinking Water
MTDC-889 - Waterbag, Nylon Duck, 55 Gallon, Suppression

(Copies of Forest Service drawings are available from USDA Forest Service, Missoula Technology and Development Center, Building 1, Fort Missoula, Missoula, MT 59804-7294.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those in effect on the date of the invitation for bids or request for proposal.

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

ANSI/ASQC Z1.4-1993 - Sampling Procedures and Tables for Inspection By Attributes

(Copies are available from the American Society of Quality Control, 611 East Wisconsin Ave., Milwaukee, WI 53202.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D 1974 - Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers
- D 3951 - Standard Practice for Commercial Packaging
- D 5118 - Standard Practice for Fabrication of Fiberboard Shipping Boxes
- D 6193 - Standard Practice for Stitches and Seams

(Copies are available from ASTM, 100 Barr Harbor Dr. West Conshohocken, PA 19428-2959.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification

(Copies are available from the American Trucking Associations, Inc., 2200 Mill Rd., Alexandria, VA 22314.)

NATIONAL SANITATION FOUNDATION (NSF)

Standard No. 51 - Plastic Materials and Components Used in Food Equipment

(Copies are available from the National Sanitation Foundation, 3475 Plymouth Rd., P.O. Box 1468, Ann Arbor, MI 48106.)

(Non-Government standards and other publications normally are available from the organizations that prepare and distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. Unless otherwise specified (see 6.2), sample(s) shall be subjected to first article inspection (see 6.4) in accordance with 4.3.

3.2 Materials and components. Materials and components shall be as specified herein and in the referenced drawings.

3.2.1 Cloth, duck, nylon (polyurethane coated). The nylon duck shall conform to type III of Forest Service specification 5100-86. The color of the type I drinking waterbag shall be royal blue and shall match the standard shade sample; the color of the type II suppression waterbag shall be bright yellow and shall match the standard shade sample (see 6.3).

3.2.2 Nylon webbing.

3.2.2.1 1 inch. The 1-inch webbing shall conform to type III or type III alternate of A-A-55301. The color shall be black.

3.2.2.2 1-15/16 inch. The 1-15/16-inch webbing shall conform to type XXIV, class 2 of MIL-W-4088. The color shall be black.

3.2.3 Thread, nylon. The thread shall conform to type II, class A of V-T-295. The thread for all stitching shall be size FF. The color shall be black.

3.2.4 Fastener, slide, interlocking. The slide fasteners shall conform to type I, style 2 (nonlocking slider), size 9 of A-A-55634. The chain shall be polyester continuous coil configuration conforming to the requirements listed in 3.2.4.1.

3.2.4.1 Fastener chain. The diameter of the chain filament shall be 0.033 to 0.050 inch. The width of the chain when closed shall be 0.320 to 0.340 inch. The chain shall be sewn to the tapes. Color of the chain shall be black. All performance requirements governing the crosswise strength of the chain are not applicable except the crosswise breaking strength requirement, which shall be 175 pounds minimum. The crosswise breaking strength shall be performed as specified in A-A-55634 except the fastener shall be preconditioned.

3.2.4.2 Slide fastener tape. The slide fastener tape shall be $3/4 \pm 1/16$ inch wide, color black, and shall be water repellent treated. The tape shall show good fastness to laundering.

3.2.4.3 Fastener slider and pull. The fasteners shall have sliders conforming to the standard long tab pull nonlocking type as specified in A-A-55634, but shall have a swivel type tab. The sliders shall properly fit the chain and shall be brass, aluminum, or other noncorroding metal. The color shall be black.

3.2.4.4 Slide fastener components. All components of the slide fasteners shall be manufactured by the same company to insure compatibility of components.

3.2.5. 1-inch buckle. The 1-inch buckle shall be a side release buckle of black acetal plastic conforming to ITW Waterbury Side Release Buckle, part no. 101-0100; National Molding Corp. Mojave Side Squeeze Buckle, part nos. 5000/5001 (male/female); or American Cord & Webbing part no. BSR-1. Mating components of the buckle shall be manufactured by the same company to ensure compatibility (see 6.5).

3.2.6 Reinforcement ring. The reinforcement ring around each bag fitment opening shall be fabricated from polyvinyl chloride film 0.040 inch thick conforming to type II, class 1 of L-P-375. The material shall meet all test values for the 0.020-inch-thick material in table II of L-P-375, except the cold crack test shall be replaced by the brittle test specified by MIL-P-18080, and the Clark Stiffness shall be 35 maximum.

3.2.7 Identification label. The identification label, located as shown on referenced drawings, shall be a sewn-on, coated cloth label conforming to type VI, class 5 of DDD-L-20, except that "size" shall be deleted, and shall be a minimum of 2 by 3 inches. The size of inscription characters shall be a minimum of 3/16-inch-high letters. Label location shall be as shown in drawings MTDC-887 and MTDC-889. Label contents shall be as follows:

**WATERBAG, 55 GALLON, NYLON DUCK, SUPPRESSION, or WATERBAG, 55
GALLON, NYLON DUCK, DRINKING^{1/}
[NSN]^{2/}
USFS Spec. 5100-94
[CONTRACT NO.]^{2/}
[MANUFACTURER'S NAME]^{2/}
DATE OF MANUFACTURE: [mm/yy]^{2/}**

^{1/} As applicable.

^{2/} The contractor shall insert the applicable information indicated.

3.2.7.1 Label margins. All labels shall be provided with a 1/4 ±1/16-inch blank margin on all four sides to facilitate sewing.

3.2.7.2 Date of manufacture. The date of manufacture shall be the month and year manufacturing starts for the contract in force.

3.2.8 Liners. The liners for the type I waterbag shall conform to the type I liner of Forest Service specification 5100-95. The liners for the type II waterbag shall conform to the type II liner of Forest Service specification 5100-95.

3.2.9 Lifting ring. The lifting ring shall be 5/8 inch (maximum) diameter bar stock formed into a 3 or 4 inch inside diameter lifting ring conforming to the requirements of Forest Service specification 5100-500.

3.2.10 Water handling accessories.

3.2.10.1 Nipple. The nipple shall be constructed from nylon plastic, color white. The nipple shall be approximately 1-1/2 inches long with one male end 3/4 inch national pipe thread and the other male end 3/4 inch garden hose thread.

3.2.10.2 Connector. The connector shall be constructed from high-impact polystyrene plastic with a gray shaft and orange release ring. The connector shall be 2 inches long with one female end 3/4 inch garden hose thread and the other end female to mate with the male end of the tap adapter specified in 3.2.10.3. The connector shall have an in-line check valve to terminate flow when the tap adapter is released. The connector shall be Gardena part no. 36918 or equal (see 6.5). Items submitted as an "equal" shall mate with Gardena part no 36904 without wobble or leakage.

3.2.10.3 Tap adapter. The tap adapter shall be constructed from high-impact polystyrene plastic, color gray. One end shall be female 3/4 inch garden hose thread with a rubber gasket. The other end shall have a tapered male design with an O ring near the end. The male end shall be designed to connect to the connector specified in 3.2.10.2. The tap adapter shall be Gardena part no. 36904 or equal (see 6.5). Items submitted as an "equal" shall mate with Gardena part no. 39618 without wobble or leakage.

3.2.10.4 Elbow hose fitting. The elbow hose fitting shall be constructed from nylon plastic in a natural color. One end shall be male 3/4 inch national pipe oriented 90 degrees to the other end, which shall be male tapered with concentric barbs designed to be attached to the 1/2-inch sanitary hose specified in 3.2.10.5 (see 6.5).

3.2.10.5 Sanitary hose. The sanitary hose shall be constructed from clear plastic complying with National Sanitation Foundation Standard no. 51 for use with potable water. The sanitary hose shall be 1/2 inch inside diameter (ID), 5/8 inch outside diameter (OD), and 1/16 inch wall, cut 48 inches in length (see 6.5).

3.2.10.6 Shutoff clamp. The shutoff clamp shall be constructed from polyester plastic, color white. The shutoff clamp shall have a ratchet locking end designed for one-hand operation by pushing or releasing the ratchet end with a thumb. The shutoff clamp shall evenly control the flow of the 1/2 inch sanitary hose specified in 3.2.10.5 from fully open to completely shut off (see 6.5).

3.2.10.7 Shutoff valve. The shutoff valve shall be constructed from nylon, color optional. The shutoff valve shall be 2 inches long with one end threaded with female garden hose threads, the other end shall be threaded with male garden hose threads. The shutoff valve shall be an in-line ball valve, rotating a lever arm 90 degrees to shut off flow.

3.2.10.8 Hose and hose assembly. The hose and hose assembly shall conform to the requirements of type II, grade A, size 5/8 inch of L-H-520. The hose shall be 3 feet in length. As an alternative, a clear, 5/8 inch ID hose with plastic 3/4 inch garden hose threaded connections (male on one end and female on the other), with a proof pressure of 100 psi, may be supplied.

3.3 Construction. The construction for the type I waterbag shall conform in all respects to drawing MTDC-887 and as specified herein. The construction for the type II waterbag shall conform in all respects to drawing MTDC-889 and as specified herein.

3.3.1 Stitches, seams, and stitchings. All stitching shall conform to type 301 of ASTM D 6193, 6 to 8 stitches per inch.

3.3.1.1 Type 301 stitching. Ends of all stitching shall be backstitched a minimum of 1 inch (1/2 inch for box, box-x, and w-w) except where ends are turned under or caught in other seams or stitching. Thread tensions shall be maintained so there will be no loose bobbin or top thread or excessively tight stitching resulting in puckering of the materials sewn. The lock shall be imbedded in the materials sewn.

3.3.1.1.1 Repairs of type 301 stitching. Repairs of type 301 stitching shall be as follows (when making the following repairs, the ends of the stitching are not required to be backstitched):

- a. When thread breaks or bobbin runouts occur during stitching, except presewing, the stitching shall be repaired by restarting the stitching a minimum of 1 inch (1/2 inch for box-x) back of the end of the stitching.
- b. Except for prestitching, thread breaks or two or more consecutive skipped or runoff stitches noted during inspection of the item (inprocess or end item) shall be repaired by over stitching. The stitching shall start a minimum of 1 inch in back of the defective area (1/2 inch on box-x), continue over the defective area to a minimum of 1 inch into existing stitching. Loose or excessively tight stitching shall be repaired by removing the defective stitching, without damaging the materials, and restitching in the required manner.

3.3.1.2 Automatic stitching. Automatic machines may be used to perform any of the stitch patterns provided the requirements for the stitch pattern, stitches per inch, size, and type of thread, are met; and at least three or more tying, overlapping, or backstitches are used to secure the ends of the stitching.

3.3.1.3 Thread ends. All thread ends shall be trimmed to 1/4 inch maximum length.

3.3.1.4 Lubrication of thread. There shall be no lubrication of the thread by any means, before or during sewing (see 4.3.2).

3.3.1.5 Stitching margins. Unless otherwise specified, all stitching margins shall be 1/8 inch.

3.3.2 Fusing ends of webbing. All ends of nylon webbing shall be fused before assembly for stitching. The apparatus used to fuse webbing ends shall provide enough heat to create a smooth edge with the cut ends of all webbing yarns fused together.

3.3.3 Location marks. Location marks may be drilled, providing the drill diameter does not exceed 0.076 inch. All drill holes shall be covered on the finished item. Printed markings shall be no more than 1/32 inch in width.

3.3.4 Repairs. Repairs such as mends, darns, patches, or splices are not permitted on any components of the water bag.

3.3.5 Piecing. No piecing or splicing of materials is allowed.

3.3.6 Replacement of defective components. During the spreading, cutting, and manufacturing process, components having material defects or damages that are classified as defects in 4.3.4.1 shall be removed from production and replaced with nondefective and properly matched components.

3.3.7 Coated cloth surface. The coated side of the cloth shall face the inside of the completed water bag.

3.4 Water handling accessories.

3.4.1 Type I. The water handling accessories to be included with the type I drinking waterbag shall be as follows:

- 1 Nipple (3.2.10.1)
- 1 Connector (3.2.10.2)
- 1 Tap adapter (3.2.10.3)
- 2 Elbow hose fittings (3.2.10.4)
- 2 Sanitary hoses (3.2.10.5)
- 2 Shutoff clamps (3.2.10.6)

3.4.2 Type II. The water handling accessories to be included with the type II suppression waterbag shall be as follows:

- 2 Nipples (3.2.10.1)
- 1 Connector (3.2.10.2)
- 1 Tap adapter (3.2.10.3)
- 1 Shutoff valve (3.2.10.7)
- 1 Hose and hose assembly (3.2.10.8)

3.5 Marking. The letters "FSS" and words, "DRINKING WATER ONLY" and "NOT FOR DRINKING" shall be silk-screen printed to the face side of the cloth with a black marking medium in the location and size characters shown on drawings MTDC-887 and MTDC-889. This labeling shall conform to type IV, class 9 of DDD-L-20. Fastness of the class 9 marking shall be as specified for class 5 marking. The ink shall fuse completely to the cloth and remain flexible without cracking or crazing. The color of the cloth components shall not be visible under the markings.

3.6 Dimensions. All dimensions except pattern sizes are finished dimensions.

3.7 Patterns. Standard patterns for textile components other than tape or webbing are shown full scale on drawings and provide allowances for all seams and shall be used for making working patterns. The working patterns shall be identical to Government standard patterns, which shall not be altered in any way. All parts shall be within 1/8 inch of the locations shown on the patterns.

3.8 User instructions. Figures 1 and 2 depict the user instructions for the waterbags. The user instructions shall be printed with black waterproof ink on one sheet of Tyvek 1058 or one sheet of Kimdura 150. The instruction sheet shall measure 8-1/2 by 11 inches. User instructions shall be produced by the contractor from a camera ready copy supplied by the Government (see 6.6).

3.9 Workmanship. All waterbag components shall conform to the quality of product established by this document. The occurrence of defects shall not exceed the applicable quality levels. There shall be no defects that affect use, appearance, or serviceability.

3.10 Metric products. Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch/pound units, provided they fall within the tolerances specified using conversion tables contained in the latest revision of FED-STD-376, and all other requirements of this specification are met.

3.11 Recovered materials. The contractor/offeror is encouraged to use recovered materials to the maximum extent possible in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR)

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations or tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his/her own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in this specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection as part of manufacturing operations is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for ensuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point or at all points in the manufacturing process necessary to ensure compliance with all dimensional requirements.

4.1.3 Certification of compliance. Unless otherwise specified, certificates of compliance supplied by the manufacturer of the item, component, or material, listing the specified test method and test results obtained, may be furnished in lieu of actual lot by lot testing performed by the contractor (see 4.3.2). When certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

4.2 Sampling for inspections and tests. Sampling for inspections and tests shall be made in accordance with ANSI/ASQC Z1.4. The inspection level and acceptable quality level (AQL) shall be as specified. All personal gear packs manufactured at one time shall be considered a lot for purposes of acceptance inspection and test. A sample unit shall be one complete personal gear pack.

4.3 Quality conformance inspections. Each end item lot shall be sampled and inspected as specified in 4.3.4.1 and 4.3.4.2. The packaging shall be inspected as specified in 4.4. Unless otherwise specified (see 6.2), the first articles submitted in accordance with 3.1 shall be inspected as specified in 4.3.4.1 and 4.3.4.2. Packaging and packing inspection is not part of the first article inspection. The presence of any defect or failure to pass any test shall be cause for rejection of the first article.

4.3.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents, drawings, and standards unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

4.3.2 Certification. Unless otherwise specified (see 6.2), as part of first article presentations and lot inspections, it shall be acceptable for the contractor to provide certificates of compliance for all materials and components in lieu of lot by lot testing, except as specified in 4.3.2.1. In addition, when the contractor changes component or material suppliers, a new certification based on actual test results shall be required. The contractor shall furnish a certificate of compliance for the requirements of 3.3.1.4 prohibiting use of thread lubricants before or during sewing. All certificates of compliance shall include:

Product description, including specification, type, class, and form when applicable
 Quantity purchased
 Date of manufacture
 Purchase source, address, and telephone number
 Purchase date
 Lot number traceable to materials used in production
 Contract number

4.3.2.1 Test values. The contractor shall provide actual test values for the polyurethane coated nylon duck cloth (3.2.1) for each new lot purchased. Such test reports, traceable to each lot used in production of the personal gear pack shall be maintained at the inspection point specified in the contract. Copies of these test reports shall be made available to the Government representative upon request.

4.3.3 In-process inspection. Inspection shall be made at any point or during any phase of the manufacturing process to determine whether cut lengths and location of assembled component parts are in accordance with specified requirements. Inspection shall be made to determine that holes drilled for location marking do not exceed 0.076 inch diameter and are placed in such a manner that each shall be covered in the finished item (3.3.3). Whenever nonconformance is noted, corrections shall be made to the parts affected and lot in process. Components that cannot be corrected shall be removed from production.

4.3.4 End item examination.

4.3.4.1 End item visual examination. The end items shall be examined for the defects listed in table I on a lot by lot basis. The lot size shall be expressed in units of complete personal gear packs or tent bags. The inspection level shall be I, and acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 4.0 for major defects and 15.0 for combined major and minor defects. Unless otherwise specified, defects shall be scored on an individual basis, i.e., each seam, each stitching end, each dimension, etc.

TABLE I. End item visual defects

Examine	Defect	Classification	
		Major	Minor
Nylon cloth	Hole, cut, or tear	X	
	Any abrasion mark, smash, large slub, broken or missing yarn, multiple float, or open place, clearly visible at normal inspection distance (3 feet)	X	
	Needle chew	X	
	NOTE: Needle holes visible as the result of broken or skipped stitching or stitching that has been removed shall not be considered as needle chews providing that the holes are spaced in the normal stitch range.		
	Color not as specified	X	
	Shade bar, fine or coarse filling bar		X
	Coated side of cloth not facing inward	X	
	Coating defective or partially omitted		X

(cont)

TABLE I. End item visual defects (continued)

Examine	Defect	Classification	
		Major	Minor
Webbing	Size, or type not as specified	X	
	Color not as specified	X	
	Any hole, cut, tear, or smash	X	
	Abrasion mark, slub, broken end, or pick		X
	Cut ends not fused as specified	X	
	Treatment not as specified	X	
	Not firmly and tightly woven	X	
	Edges frayed or scalloped	X	
	Multiple floats		X
Slide fastener	Not specified type, size, or color	X	
	Does not provide a smooth and secure closure full length of pocket opening	X	
	Slider jams or fails to interlock chain scoops	X	
	Any portion of fastener broken, bent, missing, or not aligned, making fastener unusable	X	
	Fastener tape not specified width	X	
	Slider not specified type	X	
	Slider not attached as specified	X	
	Chain not material or configuration specified	X	
	NOTE: Each slide fastener shall be fully closed and opened three times to determine whether fastener operates smoothly and provides a secure closure.		
Thread	Type, class, subclass, or size not as specified	X	
	Any thread lubricated	X	
	Color not as specified		X
Hardware general	Any part broken, cracked, chipped, distorted, twisted, or out of shape	X	
	Any dirt or flash		X
	Any deep scratch or gouge		X
	Gates not trimmed		X
	Surface not smooth		X
	Any pit, void, crazing, air pocket, blister, or imbedded foreign matter that affects serviceability	X	
	Evidence of spray or jetting marks	X	
Buckles	Size or type not as specified	X	
	Mating components not from same manufacturer	X	
	Latch and latch receptacle do not mate	X	
	Webbing incorrectly threaded through male buckle	X	
	Male buckle upside down	X	
(cont)			

TABLE I. End item visual defects (continued)

Examine	Defect	Classification	
		Major	Minor
	NOTE: Each plastic quick-release buckle shall be latched and unlatched three times to determine whether it operates smoothly and provides a secure closure.		
Seams and stitching:			
Open seam	1/2 inch or less More than 1/2 inch	X	X
	NOTE: A seam shall be classified as open when one or more stitches joining a seam are broken or when two or more consecutive skipped stitches or runoff stitches occur. On double stitched seams, a seam shall be considered open when either one or both sides of the seam are open.		
Raw edge (on edge required to be finished)	More than 1/2 inch when securely caught in stitching		X
	NOTE: Raw edge not securely caught in stitching shall be classified as an open seam.		
Run-off (see open seam)			
Seam and stitch type	Seam or stitch type not as specified Required row of stitching omitted or not located as specified	X X	
Stitch tension	Loose, resulting in a loose bobbin or top thread Excessively tight, resulting in puckering of material		X X
	NOTE: Defects to be scored only when the condition exists for 4 inches or more or in several areas with an accumulated distance of 8 inches or more. Applicable to individual seams.		
Stitches per inch	Up to two stitches less than minimum specified Three or more stitches less than minimum specified Two or more stitches in excess of maximum specified		X X X
(cont)			

TABLE I. End item visual defects (continued)

Examine	Defect	Classification	
		Major	Minor
	NOTE: Variation in the number of stitches per inch caused by the operator speeding up the machine and pulling the fabric in order to sew over heavy seams or in turning corners, shall be classified as follows: (a) Within the minor defect classification - no defect (b) Within the major defect classification - minor defect		
Stitch margin (not otherwise classified)	Exceeds specified tolerance, up to 1/16 inch		X
	Exceeds specified tolerance, over 1/16 inch	X	
	NOTE: Defects to be scored only when the condition exists for 4 inches or more or in several areas with an accumulated distance of 8 inches or more. Applicable to individual seams.		
Stitching ends	Not secured as specified		X
Thread breaks, skipped stitches, or run-offs (unless otherwise classified)	Not overstitched as specified		X
	NOTE: Thread breaks, or two or more consecutive skipped or run-off stitches not overstitched shall be classified as open seams.		
Rows of stitching	Any row missing except on box stitching	X	
	On box stitching: - One row of stitching omitted - Two or more rows of stitching omitted	X	X
Components and assembly	Any component part omitted or not as specified or any operation omitted or not as specified (unless otherwise classified herein)	X	
	Needle chews	X	
	Any mend, darn, patch, splice or other unauthorized repair	X	
	Any material pleated or caught in stitch where not specified		X
Piecing	Any piecing or splicing	X	
Cleanness	Grease, oil, dirt, or ink stains clearly noticeable	X	
	Thread ends not trimmed to 1/4 inch or less		X
(cont)			

TABLE I. End item visual defects (continued)

Examine	Defect	Classification	
		Major	Minor
Liner (<u>1</u> /)	Liner missing	X	
Identification label	Wrong type or class	X	
	Incorrect type size or information	X	
	Not in location specified	X	
	Incorrect label margins		X
Reinforcement ring	Wrong type or class	X	
	Wrong thickness	X	
Fill fittings	Any component missing or not as specified	X	
Drain fittings	Any component missing or not as specified	X	
User instructions	Missing or not as specified	X	
Ring (sling)	Missing or not as specified	X	
Cutting	Any component part not cut in accordance with directional lines	X	
Location markings	Not covered on finished item		X
	Exceeding size specified		X
Markings	Omitted, incorrect, illegible, misplaced, or size of characters not as specified	X	
	Cloth color visible under black marking medium		X

1/ The liner shall be inspected for visual and dimensional defects in accordance with Forest Service specification 5100-95.

4.3.4.2 End item dimensional examination. End items shall be examined for the defects listed in table II on a lot by lot basis. Only those dimensions that can be evaluated without damaging or disassembling the end items shall be examined. The inspection level shall be S-3. An AQL, expressed in terms of defects per hundred units, shall be 6.5 for major defects and 15.0 for combined major and minor defects.

TABLE II. End item dimensional defects

Examine	Defect	Classification	
		Major	Minor
Dimensions (overall)	Smaller than nominal dimensions less applicable minus tolerance indicated on drawings, but not smaller than nominal dimensions less twice the applicable minus tolerances		X
	Smaller than nominal dimensions less twice the applicable minus tolerance	X	
	Larger than nominal dimensions and applicable plus tolerance		X
Component and location dimensions	Not within specified tolerance		X
Box, box-x and w-w stitching	Dimensions not as specified		X
Stitch margin and gauge	Not within specified tolerance		X

4.4 Packaging inspection. An examination shall be made to determine that packing and marking comply with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully packaged except that it shall not be palletized and it need not be closed. Shipping containers fully packaged that have not been palletized shall be examined for defects in closure. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 and the AQL shall be 2.5 defects per hundred units.

<u>Examine</u>	<u>Defect</u>
Markings	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.
Materials	Any component missing or not as specified.
Workmanship	Any component damaged, affecting serviceability.
	Inadequate application of components, such as: incomplete closure of container flaps, improper taping, loose strapping, inadequate stapling.
	Bulged or distorted container.
	Open or noncontinuous heat-sealed seams and closures of polyethylene bags
Contents	Incorrectly fabricated polyethylene bag
	Number per container is more or less than required.

5. PACKAGING

5.1 Preservation. Preservation shall be in accordance with ASTM D 3951 and as specified in the contract or purchase order.

5.1.1 Packaging.

5.1.1.1 Assembly, type I drinking waterbag. The complete waterbag assembly shall include the blue nylon duck outer bag, one liner, 3 fitment caps, three 3/4 inch plugs, the water handling accessories as described in 3.4.1, and instruction sheet. Prior to insertion into the bags, the 3 fitment caps shall each have a 3/4 inch plug threaded finger tight and shall themselves be threaded hand tight onto the 3 female fitments of the bag. The liner shall be inserted into the nylon outer bag with the 3 fitments positioned through the 3 fitment holes of the outer bag so that the liner and bag lay flat with the buckles fastened. The water handling accessories and an instruction sheet shall be packed together into a resealable plastic bag, minimum size 10-1/2 by 11 inches, and placed in the external pocket of the nylon outer bag and the zipper closed.

5.1.1.2 Assembly, type II suppression waterbag. The complete waterbag assembly shall include the bright yellow nylon duck outer bag, one liner, 2 fitment caps, two 3/4 inch plugs, the water handling accessories as described in 3.4.2, and instruction sheet. Prior to insertion into the bags, the 2 fitment caps shall each have a 3/4 inch plug threaded finger tight and shall themselves be threaded hand tight onto the 2 female fitments of the bag. The liner shall be inserted into the nylon outer bag with the 2 fitments positioned through the 2 fitment holes of the outer bag so that the liner and bag lay flat with the buckles fastened. The water handling accessories and an instruction sheet shall be packed together into a resealable plastic bag, minimum size 10-1/2 by 11 inches, and placed in the external pocket of the nylon outer bag and the zipper closed.

5.1.2 Folding. With the waterbag lying flat, "FSS" marking up, the bag shall be folded in thirds bottom to top and then folded in half lengthwise. The approximate size of the folded bag shall be 20 by 18 by 12 inches.

5.2 Packing. Each waterbag prepared in accordance with 5.2 shall be packed in a close-fitting fiberboard box, minimum burst strength 275 psi meeting the requirements of the latest version of ASTM D 5118. Boxes shall be in compliance with the National Motor Freight Classification. Each box shall be closed in accordance with the latest version of ASTM D 1974, except that the inspection shall be in accordance with 4.4.

5.3 Marking. In addition to any special marking required by the contract or purchase order, shipping containers and unit packs shall be marked in accordance with FED-STD-123. Bar code marking is required.

5.3.1 Special box marking. In addition to the box markings specified above, the shipping container shall have the respective NFES number, preceded by "NFES" placed under the NSN. Each shipping container shall be also clearly marked "STORE IN COOL, DRY PLACE".

6. NOTES

6.1 Intended use. These nylon waterbags with replaceable liners are designed to provide drinking and suppression water to crews engaged in field work activities, including firefighting and controlled burning. The waterbags are intended to be carried in the back of pick-up trucks as well as slung by long-lines underneath helicopters.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. Type desired.
- c. When first article samples are not required (see 3.1, 4.3, and 6.4).
- d. When lot by lot testing is required in lieu of certificates of compliance (see 4.3.2).
- e. Preservation, packing, and marking required in addition to specification requirements (see section 5).

6.3 Standard shade sample. Color shade samples for the royal blue and the bright yellow basic cloth may be obtained from the preparing activity (see 6.8).

6.4 First article. When first articles are required, they shall be inspected and approved under the appropriate provisions of Federal Acquisition Regulation 52.209. The first article shall consist of three completely assembled water bags and shall be preproduction samples. The contracting officer should include specific instructions regarding arrangements for selection, inspection, and approval of the first articles.

6.5 Suggested sources of supply.

1-inch Acetal Plastic Buckle

American Cord & Webbing Co. Inc.
1 Carrington St.
Lincoln, RI 02865

Nipple & Elbow Hose Fittings

McMaster-Carr Supply Co.
9630 Norwalk Blvd.
Santa Fe Springs, CA 90670-2932

ITW Waterbury
952 South Main St.
Waterbury, CT 06721

Hose & Shutoff Clamps
Consolidated Plastics Co., Inc.
8181 Darrow Rd.
Twinsburg, OH 44087

National Molding Corp.
5 Dubon Court
Farmingdale, NY 11735-1065

Connector & Tap Adapter

Gardena
Aqua Pore
610 S. 80th St.
Phoenix, AZ 85043

6.6 User instructions. A camera ready copy of the user instructions for the water bags, as required by 3.8, is available from the preparing activity (see 6.8).

6.7 Notice. When Government drawings, documents, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever.

6.8 Preparing activity. USDA Forest Service, Missoula Technology and Development Center, Building 1, Fort Missoula, Missoula, MT 59804-7294.

User Instructions

55-Gallon Drinking Water Bag

This 55-gallon bag provides a safe, clean source of drinking water. The complete bag includes a coated nylon duck outer bag, plastic liner, replacement liner, and the hardware for filling and draining the bag. The fill fitting consists of hardware that reduces the chance of introducing dirt and bacteria into the liner.

Follow these steps:

STEP 1—Remove the 3/4-inch plugs from the three fitment caps.

STEP 2—On the fill fitting, replace the 3/4-inch plug with a nipple.

STEP 3—Thread the quick-release connector onto the nipple.

STEP 4—Release the tap adaptor from the connector.

STEP 5—Screw the adaptor onto a garden hose with a 3/4-inch garden hose thread (GHT), then reattach it to the connector. Sterilize the hose end or thoroughly flush it with clean water before attaching the adaptor.

— CAUTION —
For health reasons, never unscrew the fitment cap and fill it by inserting any hose directly into the bag.

STEP 6—On the drain fittings, replace the 3/4-inch plugs with 90° elbow hose fittings, and attach the hoses to the elbows. Make sure the shutoff clamps are properly installed on the hoses.

STEP 7—Fill the bag to the limit of the compression straps.

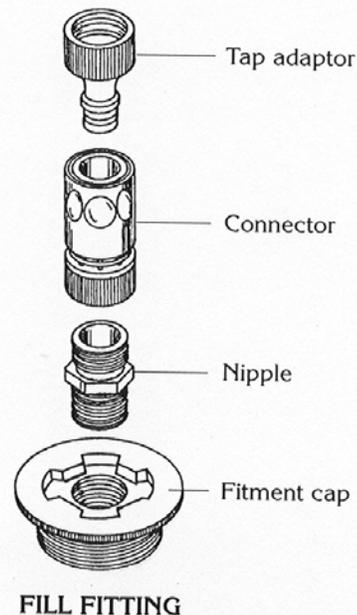
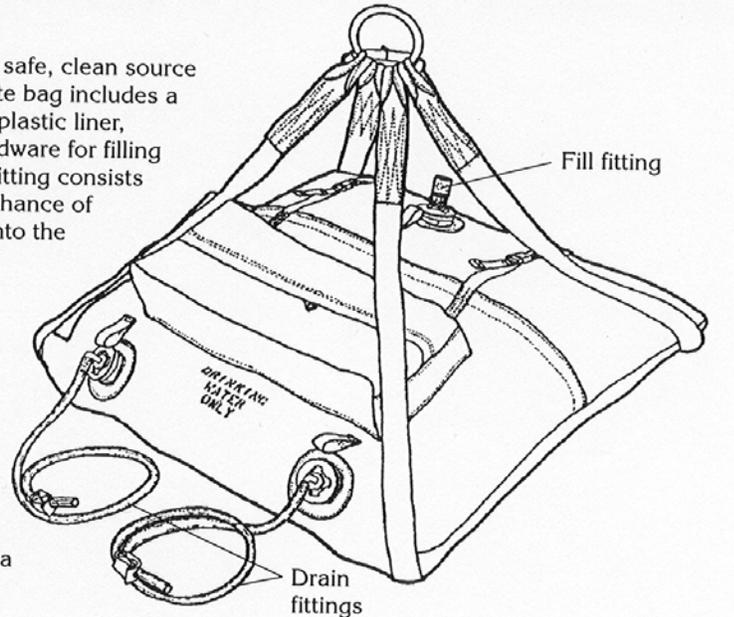


FIGURE 1 (FRONT)

STEP 8—Shut off the hose and detach it from the connector. Unscrew the adaptor from the hose and store it in the plastic bag in the zipper pocket. Refer to the following cleaning and refurbishing instructions.

STEP 9—Drain as the water is needed. The bag drains by siphoning and gravity.

— CAUTION —
Between filling operations, keep all hose ends sanitary!

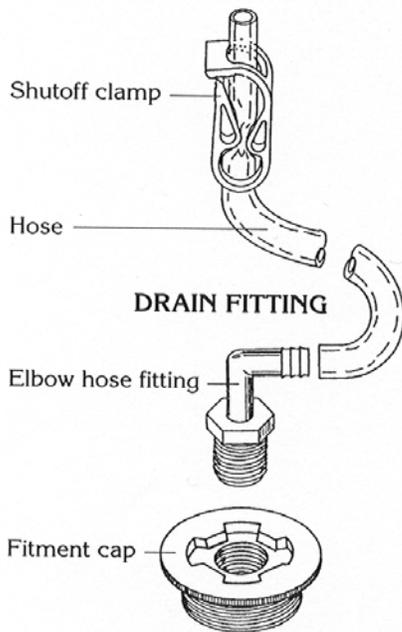
TRANSPORTING

Helicopter—The bag is designed for external load helicopter operations. It has two sling straps attached to an O-ring. When filled to the limit of the compression straps, the bag weighs 500 lbs (+/- 20 lbs).

— WARNING —
During helicopter transport, always employ a cargo swivel between the O-ring on the bag and the helicopter cargo, or remote hook.

Vehicle—The bag can be transported by pickup truck. Position the bag with the drain fitting facing the tailgate. Tie the bag down to prevent shifting during travel. When ready to use, hang the hose over the tailgate to facilitate gravity flow.

Cleaning and Refurbishing—When the cleanliness of the plastic liner becomes questionable, replace it. To keep the filling and draining hardware sterile, periodically wash it in a solution of 1 ounce of chlorine bleach per gallon of water. Rinse it thoroughly with potable water, and dry. After removing the fittings, screw the 3/4-inch plugs back into the fitment caps. When the bag is not in use, keep all fitting components sealed in the plastic bag and stored in the zipper pocket.



REPLACEMENT PARTS

Replacement parts should be available from local hardware stores. Here are some additional sources:

Tap adaptor (part 36904)	Aqua Pore 610 South 80th Street Phoenix, AZ 85043 Phone: 1-800-426-8419
Connector (part 36918)	
Hose and Shutoff clamps	Consolidated Plastics Company, Inc. 8181 Darrow Road Twinsburg, OH 44087 Phone: 1-800-362-1000
Nipples and Elbow hose fittings	McMaster-Carr Supply Company 9630 Norwalk Boulevard Santa Fe Springs, CA 90670-2932 Phone: (310) 692-5911
Plastic replacement liners	GSA Order: NSN 8465-01-369-2147

PARTS LIST

- | | |
|---|--------------------------|
| 1-Blue nylon outer bag (with sling straps and O-ring) | 1-Tap adaptor |
| 1-Plastic liner | 1-Connector |
| 1-Replacement liner | 1-Nipple |
| 3-Fitment caps | 2-Elbow hose fittings |
| 3-3/4-inch plugs (in place on fitment caps) | 2-Hoses |
| | 2-Shutoff clamps |
| | 1-User instruction sheet |

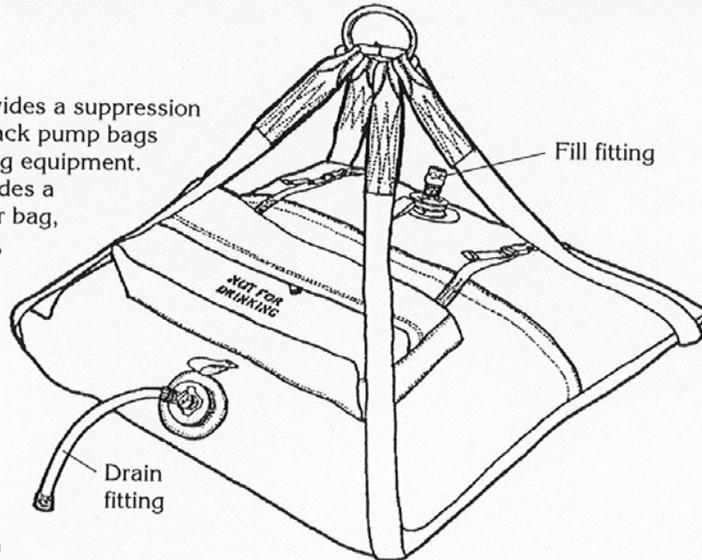
FIGURE 1 (BACK)

95-34 sl

User Instructions

55-Gallon Suppression Water Bag

This 55-gallon bag provides a suppression water source for backpack pump bags and other water-handling equipment. The complete bag includes a coated nylon duck outer bag, replaceable plastic liner, and hardware for filling and draining the bag.



Follow these steps:

STEP 1—Remove the 3/4-inch plug from each fitment cap.

STEP 2—On the fill fitting, replace the 3/4-inch plug with the nipple.

STEP 3—Thread the quick-release connector onto the nipple.

STEP 4—Release the tap adaptor from the connector.

STEP 5—Screw the adaptor onto a garden hose with a 3/4-inch garden hose thread (GHT), then reattach it to the connector. To speed the filling, a larger diameter hose can be inserted directly into the fill fitting.

STEP 6—On the drain fitting, replace the 3/4-inch plug with the nipple.

STEP 7—Thread the shutoff valve onto the nipple.

STEP 8—Thread the end of the hose assembly onto the shutoff valve.

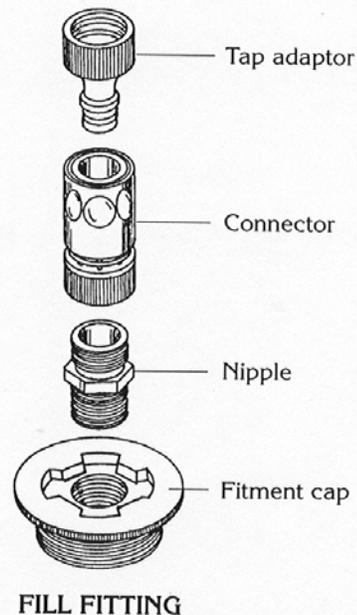


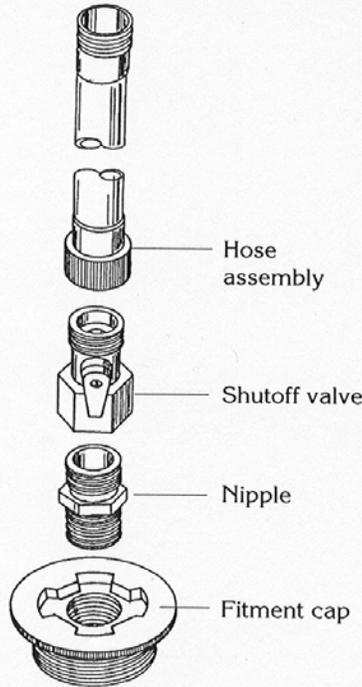
FIGURE 2 (FRONT)

5100-94A

STEP 9—Fill the bag to the limit of the compression straps.

STEP 10—Shut off the hose and detach from the connector. Unscrew the adaptor from the hose and store in the plastic bag in the zipper pocket.

STEP 11—Open and close the shutoff valve for water as needed. The bag drains by gravity and siphoning.



DRAIN FITTING

PARTS LIST

- | | |
|---|---------------------------|
| 1—Yellow nylon outer bag (with sling straps and O-ring) | 1—Tap adaptor |
| 1—Plastic liner | 1—Connector |
| 2—Fitment caps | 2—Nipples |
| 2—3/4-inch plugs (in place on fitment caps) | 1—Shutoff valve |
| | 1—Hose, and hose assembly |
| | 1—User instruction sheet |

TRANSPORTING

Helicopter—The bag is designed for external load helicopter operations. It has two sling straps attached to an O-ring. When filled to the limit of the compression straps, the bag weighs 500 lbs (+/- 20 lbs).

— **WARNING** —

During helicopter transport, always employ a cargo swivel between the O-ring on the bag and the helicopter cargo, or remote hook.

Vehicle—The bag can be transported by pickup truck. Position the bag with the drain fitting facing the tailgate. Tie the bag down to prevent shifting during travel. When ready to use, hang the hose over the tailgate to facilitate gravity flow.

REPLACEMENT PARTS

Replacement parts should be available from local hardware stores. Here are some additional sources:

- | | |
|---|--|
| Tap adaptor
(part 36904) | Aqua Pore
610 South 80th Street
Phoenix, AZ 85043
Phone: 1-800-426-8419 |
| Connector
(part 36918) | |
| Shutoff valve | Rain Bird Sprinkler Manufacturing Co.
9031 151st Street
Orland, IL 60462
Phone: 1-800-348-6544 |
| Nipples, Hose, and Hose assembly | McMaster-Carr Supply Company
9630 Norwalk Boulevard
Santa Fe Springs, CA 90670-2932
Phone: (310) 692-5911 |
| Plastic replacement liners | GSA
Order: NSN 8465-01-369-2149 |

Note: When the bag is not in use, keep all fill and drain fitting parts sealed in the plastic bag, and stored in the zipper pocket.

FIGURE 2 (BACK)

95-33 sl

Standardization Document Improvement Proposal

This form is provided to solicit beneficial comments that may improve this document and enhance its use. Contractors, government activities, manufacturers, vendors, and users are invited to submit comments to:

USDA Forest Service
Missoula Technology and Development Center
Building 1, Fort Missoula
Missoula, MT 59804-7294

Attach any additional pertinent information that may be of use in improving this document to this form and mail in a envelope. A response will be provided when the submitter includes their name and address.

NOTE: This form shall not be used to submit requests for waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the document, or to amend contractual requirements.

Document Identification: **5100-94A - WATERBAGS, 55 GALLON, NYLON DUCK
(WITH REPLACEABLE LINERS)**

Submitter's Name (Optional. Please print or type): _____	Submitter's Organization and Address: _____
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<input type="checkbox"/> Has any part of the Document created problems or required interpretation in procurement use?
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